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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,701	07/02/2004	Akira Mitsui	0071-0593PUS1	2439
2292	7590	03/29/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			TRUONG, DUC	
PO BOX 747			ART UNIT	
FALLS CHURCH, VA 22040-0747			PAPER NUMBER	

1711

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

LD

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/500,701	AKIRA ET AL	
	<b>Examiner</b>	<b>Art Unit</b>	
	Duc Truong	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____   | 6) <input type="checkbox"/> Other: ____                                     |

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 102/103*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 and 14-26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Braat et al (6,211,327).

The reference discloses a process for the preparation of low MW PPE having an intrinsic viscosity between about 0.08 dl/g and 0.16 dl/g as measured in chloroform at 25 C (see col. 2, lines 20 et seq. lines 45-48), and a glass transition temperature in the range of about 150-160 C (see col. 3, lines 45-46), comprising oxidative coupling in a reaction solution at least one monovalent phenol species using an oxygen containing gas and a complex metal amine catalyst, such as a copper (I) amine catalyst, to produce a PPE; removing at least a portion of the complex metal catalyst with an aqueous containing solution; and isolating the PPE through devolatilization of the reaction

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solvent (see col. 2, lines 20-35) and the reaction temperature is about 0 to about 95 C (See col. 5, line 61, the claims and in the Examples)

Note that the phenol compound is a mixture comprising 2,6-dimethyl phenol and 2,3,6-trimethyl phenol (see col. 3, lines 21-25).

Note also that the catalyst systems have been disclosed at col. 3, line 53 onto col. 5, line 2).

Note also that the reaction media comprises an aqueous media and an anti-solvents to help drive the precipitation of the copper species (see col. 6, lines 36-52) The disclosure of the reference differs from the instant claims in that it does not disclose the claimed MW distribution nor the claimed equation to represent the glass transition temperature nor the mean particle size of said PPE.

However, the composition disclosed by the reference is prepared from reactants and under process conditions that are inclusive of the claimed reactants and conditions. In view of this similarity, it would appear to be inherent that the product, low MW PPE having the claimed MW distribution, the claimed mean particle size and the claimed equation represent the glass transition temperature, could be prepared following the teaching of the reference.

Claims 16-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Dalton et al.

The reference discloses a precipitation process for the production of PPE comprising the steps of carrying out the oxidative coupling of at least one monohydric phenol in the presence of a catalyst comprising a copper salt and an amine in a liquid

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medium immiscible with water, said medium being a poor solvent for the PPE, to produce a slurry of solid particulate PPE dispersed in the liquid medium followed by washing the slurry with an aqueous solution of a chelating agent to remove catalyst residue (see Abstract, col. 2, lines 15-35).

Note that the monohydric phenol include 2,6-disubstitued phenols, 2,3,6-disubstitued phenols and mixture thereof (see col. 2, lines 35-43).

Note also that the catalyst system has been disclosed at col. 2, line 44 onto col. 3, line 15.

Note also that the polymerization is carried out in a liquid medium immiscible with water and comprising a mixture of a solvent for the PPE and a non-solvent. The liquid media will have good solvent ability for the monomers, for the catalyst system and for low MW oligomers but be a poor solvent for high MW PPE, causing the polymer to precipitate---(see col. 3, lines 16-24).

Note also that the reactants and the steps of the process have been disclosed at col. 3, line 53 onto col. 5, line 61, and in the Examples.

Thus, each and every limitation of the claims is met by the reference.

Claims 1-15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dalton et al.

The reference discloses a process for the production of low MW PPE, as stated above.

The disclosure of the reference differs from the instant claims in that it does not disclose the claimed characteristics such as viscosity, MW distribution, glass transition

temperature, mean particle size nor the phenol compound is a mixture of 2,6-dimethylphenol and 2,6-diphenylphenol.

However, the reference does disclose the use of 2,6-disubstituted phenols, 2,3,6-disubstituted phenols and mixture thereof in that 2,6-diphenylphenol is included in the broad 2,6-disubstituted phenol.. Further, the composition disclosed by the reference is prepared from reactants and under process conditions that are inclusive of the claimed reactants and conditions. In view of the similarity, the claimed characteristics such as viscosity, MW distribution, mean particle size- must be considered inherent in the prior art.

Claims 1-11 and 14-15 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 00/46273.

The reference discloses a PPE resin having an intrinsic viscosity between about 0.08 and 0.16 dl/g when measured in chloroform at 25 C, by oxidative coupling at least one monovalent phenol species, using an oxygen containing gas and a complex copper amine catalyst, as the oxidizing agent and extracting at least a portion of the metal catalyst as a metal organic salt with an aqueous containing solution, and isolating the PPE through devolatilation of the reaction solvent.

Since the conditions are similar or the same then the claimed characteristics must be considered inherent in the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Truong whose telephone number is 571-272-1081. The examiner can normally be reached on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'Ductruong', with a stylized flourish at the end.

DUCTRUONG  
PRIMARY EXAMINER